PRESTON EASTSIDE WATER WORKS (PWS 6210012)
SOURCE WATER ASSESSMENT FINAL REPORT

February 26, 2003

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated assessment areas and sensitivity factors associated with the spring and the aquifer characteristics.

This report, *Source Water Assessment for Preston Eastside Water Works, Preston, Idaho*, describes the public water system (PWS), the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The Preston Eastside Water Works PWS (# 6210012) is a community drinking water system located in Franklin County. The water system consists of one spring that was developed and covered in the 1930's, and later improved in 1990. The spring is located approximately two miles northeast of Preston on the southwest side of Glendale Reservoir. The discharge of the spring is variable throughout the year, depending on precipitation. The water from the spring is delivered to a 30,000-gallon storage reservoir. The drinking water from the system is disinfected using hypochlorine manually injected into the reservoir. The water system currently serves 130 persons through 40 connections.

The potential contaminant sources within the delineation capture zone are the Glendale Reservoir, Glendale Road, Worm Creek, an unimproved road that runs near the Glendale Reservoir, and an irrigation canal. If an accidental spill occurred into any of these road corridors or water corridors or into the reservoir, inorganic chemical (IOC) contaminants, volatile organic chemical (VOC) contaminants, synthetic organic chemical (SOC) contaminants, or microbial contaminants could be added to the aquifer systems. No other potential contaminant sources were identified within the delineated area that may contribute to the overall vulnerability of the water source.

Final spring susceptibility scores are derived from heavily weighting potential contaminant inventory/land use scores and adding them with system construction scores. Therefore, a low rating in one category coupled with a higher rating in the other category results in a final rating of low, moderate, or high susceptibility. Potential contaminants are divided into four categories: IOCs (i.e., nitrates, arsenic), VOCs (i.e., petroleum products), SOCs (i.e., pesticides), and microbial contaminants (i.e., bacteria). As a spring can be subject to various contamination settings, separate scores are given for each type of contaminant.

For the assessment, a review of laboratory tests was conducted using the State Drinking Water Information System (SDWIS). Total coliform bacteria have been detected in the distribution system several times between July 1994 and October 2002, with repeated detections in July 1994, January 1995, September 1998, and April 2001. *E.coli* bacteria were detected in the distribution system once in 1997. However, no *E.coli* or coliform bacteria have been detected at the spring. No SOCs or VOCs have been detected in the spring water. The IOCs fluoride, sodium, and nitrate have been detected in the spring water but at concentrations below the maximum contaminant level (MCL) for each chemical, as established by the EPA. Traces of alpha and beta particles (radionuclides) have been detected in the spring.

Two Microscopic Particulate Analyses (MPAs) were completed to determine if the Preston Eastside spring is influenced by surface water. The first test was completed during a high water table period (April 29, 2001) and the second test was conducted during a low water table period (October 4, 2001). The relative risk rating for both samples was zero, indicating that the spring water is not influenced by surface water and is considered ground water.

In terms of total susceptibility, the spring rated automatically high for IOCs, VOCs, SOCs, and microbial contaminants due to an irrigation canal that runs within 30 feet upgradient of the spring. System construction rated high and potential contaminant land use scores were moderate for IOCs, VOCs, and SOCs, and low for microbials.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well or spring sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For the Preston Eastside Water Works, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). The spring is located on private land, and the water system has an easement on this property. The water system has not been able to get permission to build a 100-foot radius fence to enclose the spring due to the land ownership situation. The water system may want to investigate modifying or amending the property easement as a viable means of gaining better control over activities within this area and protecting their sole drinking water source. In the meantime, working with landowners and monitoring activities in the vicinity of the spring are good protection measures. The irrigation canal that runs within 30 feet upgradient from the spring is lined with clay, and has a steeply sloped, three-foot high berm to prevent overflow that could impact the spring area. The water system indicated that it is physically impossible to divert or move the canal, and the canal itself catches and diverts surface water runoff from the spring's collection area (communication, 2003). Although the MPA tests show that the spring is not under the influence of surface water, the water system should continue monitoring the irrigation canal as a possible contaminant threat to their drinking water. The land uses within most of the source water assessment areas are outside the direct jurisdiction of the Preston Eastside Water Works, collaboration and partnerships with state and local agencies and industry groups should be established and are critical to success. Educating employees and the public about source water will further assist the system in its monitoring and protection efforts.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan. Public education topics could include household hazardous waste disposal methods and the importance of water conservation. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Franklin County Soil Conservation District, and the Natural Resources Conservation Service.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (e.g., zoning, permitting) or non-regulatory in nature (i.e., good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Pocatello Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR
PRESTON EASTSIDE WATER WORKS, PRESTON, IDAHO

Section 1. Introduction - Basis for Assessment

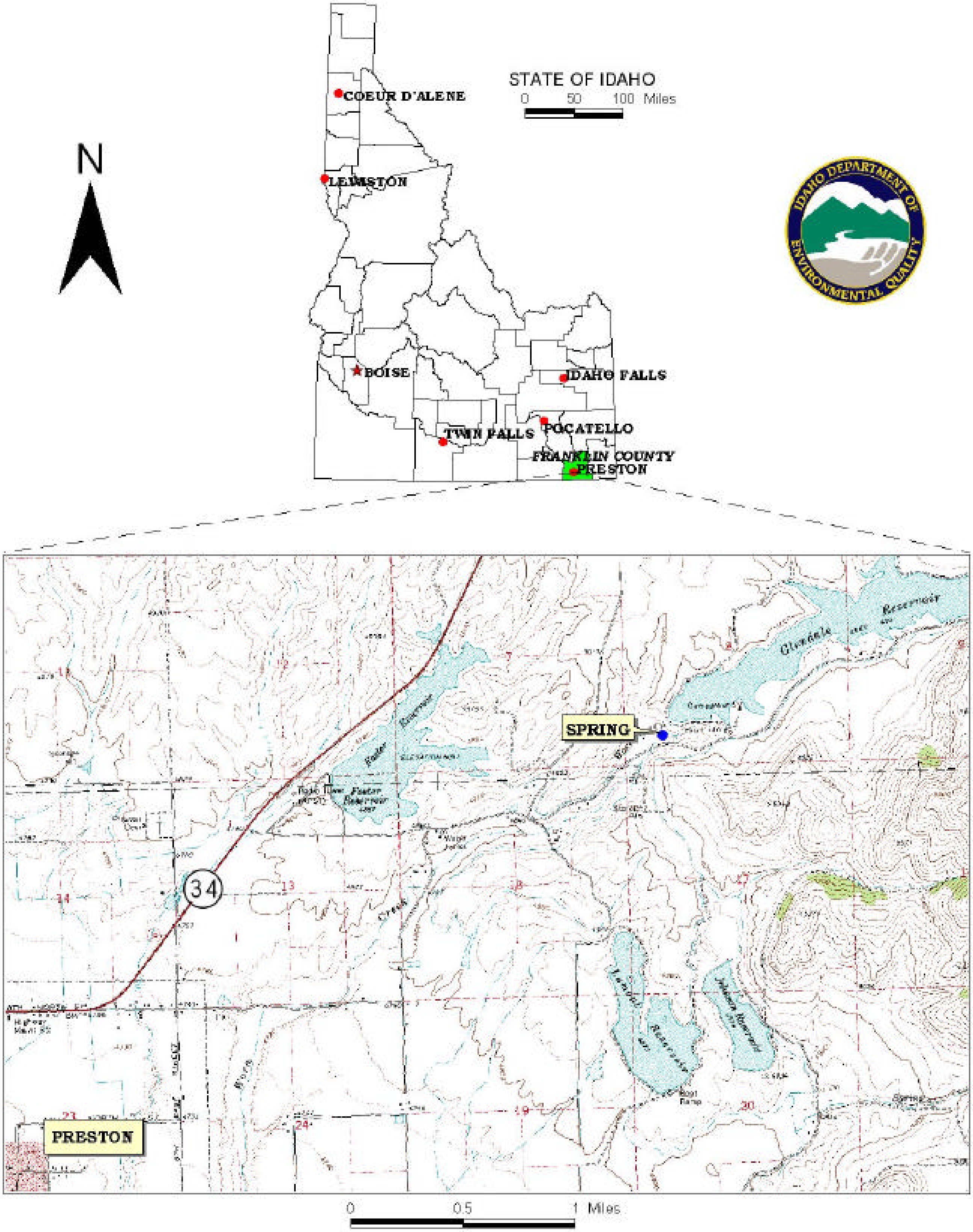
The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this assessment means.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are included. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is included.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U.S. Environmental Protection Agency (EPA) to assess over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the spring, and aquifer characteristics. All assessments must be completed by May of 2003. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water supply system is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the public water system (PWS).**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. DEQ recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

FIGURE 1. Geographic Location of the Preston Eastside Water Works



Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Preston Eastside Water Works PWS (# 6210012) is a community drinking water system located in Franklin County (Figure 1). The water system consists of one spring that was developed and covered in the 1930's, and later improved in 1990. The spring is located approximately two miles northeast of Preston on the southwest side of Glendale Reservoir. The discharge of the spring is variable throughout the year, depending on precipitation. The water from the spring is delivered to a 30,000-gallon storage reservoir. The drinking water from the system is disinfected using hypochlorine manually injected into the reservoir. The water system currently serves 130 persons through 40 connections.

Total coliform bacteria have been detected in the distribution system several times between July 1994 and October 2002, with repeated detections in July 1994, January 1995, September 1998, and April 2001. *E.coli* bacteria were detected in the distribution system once in 1997. However, no *E.coli* or coliform bacteria have been detected at the spring. No synthetic organic chemicals (SOCs) or volatile organic chemicals (VOCs) have been detected in the spring water. The inorganic chemicals (IOCs) fluoride, sodium, and nitrate have been detected in the spring water but at concentrations below the maximum contaminant level (MCL) for each chemical, as established by the EPA. Traces of alpha and beta particles (radionuclides) have been detected at the spring and in the distribution system.

Two Microscopic Particulate Analyses (MPAs) were completed to determine if the Preston Eastside spring is influenced by surface water. The first test was completed during a high water table period (April 29, 2001) and the second test was conducted during a low water table period (October 4, 2001). The relative risk rating for both samples was zero, indicating that the spring water is not influenced by surface water and is considered ground water.

Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a spring that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a flowing spring) for water in the aquifer. Washington Group International (WGI) was contracted by DEQ to define the public water system's zones of contribution. WGI used a refined method with a uniform flow model approved by the Source Water Assessment Plan (DEQ, 1999) in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT zones for water associated with the "None" hydrologic province in the vicinity of the Preston Eastside Water Works. The computer model used site specific data, assimilated by WGI from a variety of sources including operator records and hydrogeologic reports. A summary of the hydrogeologic information from the WGI is provided below.

Hydrogeologic Conceptual Model

Graham and Campbell (1981) identified and described 70 regional ground water systems throughout Idaho. Thirty-four of these fall within the southeastern part of the state. The “None” hydrologic province, as defined in this report, includes all the area outside of the 34 regional systems in southeast Idaho. The smaller and more localized aquifers in the “None” province typically are situated in the foothills and mountains that surround and recharge the regional ground water systems.

The mountains and valleys within the “None” hydrologic province were formed during two events separated by approximately 50 to 70 million years (Alt and Hyndman, 1989, pp. 329 and 336). The overthrust belt of the northern Rocky Mountains was formed roughly 70 to 90 million years ago through the intrusion of granitic magma and a massive eastward movement of large slabs of layered sedimentary rocks along faults that dip shallowly westward (Alt and Hyndman, 1989, p. 329). This movement caused extreme folding and fracturing of the sedimentary and granitic rocks and, in many cases, left older formations lying on top of younger ones. Later Basin and Range block faulting broke up the largely eroded Rocky Mountains into large uplifted and downthrown blocks resulting in the present day northwest trending mountains and valleys seen throughout southeast Idaho. Paleozoic and Precambrian limestone, dolomite, sandstone, shale, siltstone, and quartzite are the predominant materials forming the mountains and probably compose the bedrock underlying the valleys between Salmon, Idaho on the north side of the Snake River Plain and Franklin, Idaho near the Utah/Idaho border (Dion, 1969, p.18; Kariya et al., 1994, p. 6; Bjorklund and McGreevy, 1971, p. 12; and Parliman, 1982, p. 9).

Ground water movement in the mountains is primarily through a system of solution channels, fractures and joints that commonly transmit water independently of surface topography (Bjorklund and McGreevy, 1971, p. 15; Dion, 1969, p. 18). Ralston and others (1979, pp. 128-129) state that the geologic structural features also can contribute to the development of cross-basin ground water flow systems. Ground water entering a geologic formation tends to follow the formation because hydraulic conductivities are greater parallel to the bedding planes than across them. Synclines and anticlines provide structural avenues for ground water flow under ridges from one valley to another.

The average annual precipitation in the mountains of southeast Idaho ranges from 20 inches on ridges near Soda Springs to over 45 inches on the Bear River Range (Ralston and Trihey, 1975, p. 7, and Dion, 1969, p. 11). The valleys receive an average of 7 to 10 inches annually (Donato, 1998, p. 3, and Dion, 1969, p. 11). Precipitation and seepage from streams are the primary source of recharge to the mountain aquifers (Kariya, et al., 1994, p. 18, and Parliman, 1982, p. 13).

Ground water discharge occurs as springs and seeps issuing from faults, fractures, and solution channels and as underflow to regional aquifers. The Bear River Basin in the far southeast corner of the state contains hundreds of springs issuing primarily from fractures and solution openings in the bedrock mountains (Dion, 1969, p. 47, and Bjorklund and McGreevy, 1971, pp. 34-35). Within Cache Valley many springs discharge from the valley-fill deposits (Kariya et al., 1994, p. 32).

There is little available information on the distribution of hydraulic head and the hydraulic properties of the aquifers in the “None” hydrologic province. No U.S. Geological Survey (2001) or Idaho Statewide Monitoring Network (Neely, 2001) wells are located in the areas of concern to provide information on ground water flow direction and hydraulic gradient or to aid in model calibration. The information that is available indicates that the hydraulic properties are quite variable, even within a specific rock type. Ralston and others (1979, p. 31), for example, present hydraulic conductivity estimates for fractured chert ranging from 2.2 to 75 feet per day (ft/day). Estimates for phosphatic shale are as low as 0.07 ft/day (unfractured) and as high as 25 ft/day (fractured).

Springs and Spring Delineation Methods

A spring is defined as a concentrated discharge of ground water appearing at the ground surface as flowing water (Todd, 1980). The discharge of a spring depends on the hydraulic conductivity of the aquifer, the area of contributing recharge to the aquifer, and the rate of aquifer recharge. PWS springs are generally perennial. Large seasonal changes in the discharge rates are an indication of a relatively shallow flow system. While most springs fluctuate in their rate of discharge, springs in volcanic rock (e.g., basalt) are noted for their nearly constant discharge (Todd, 1980).

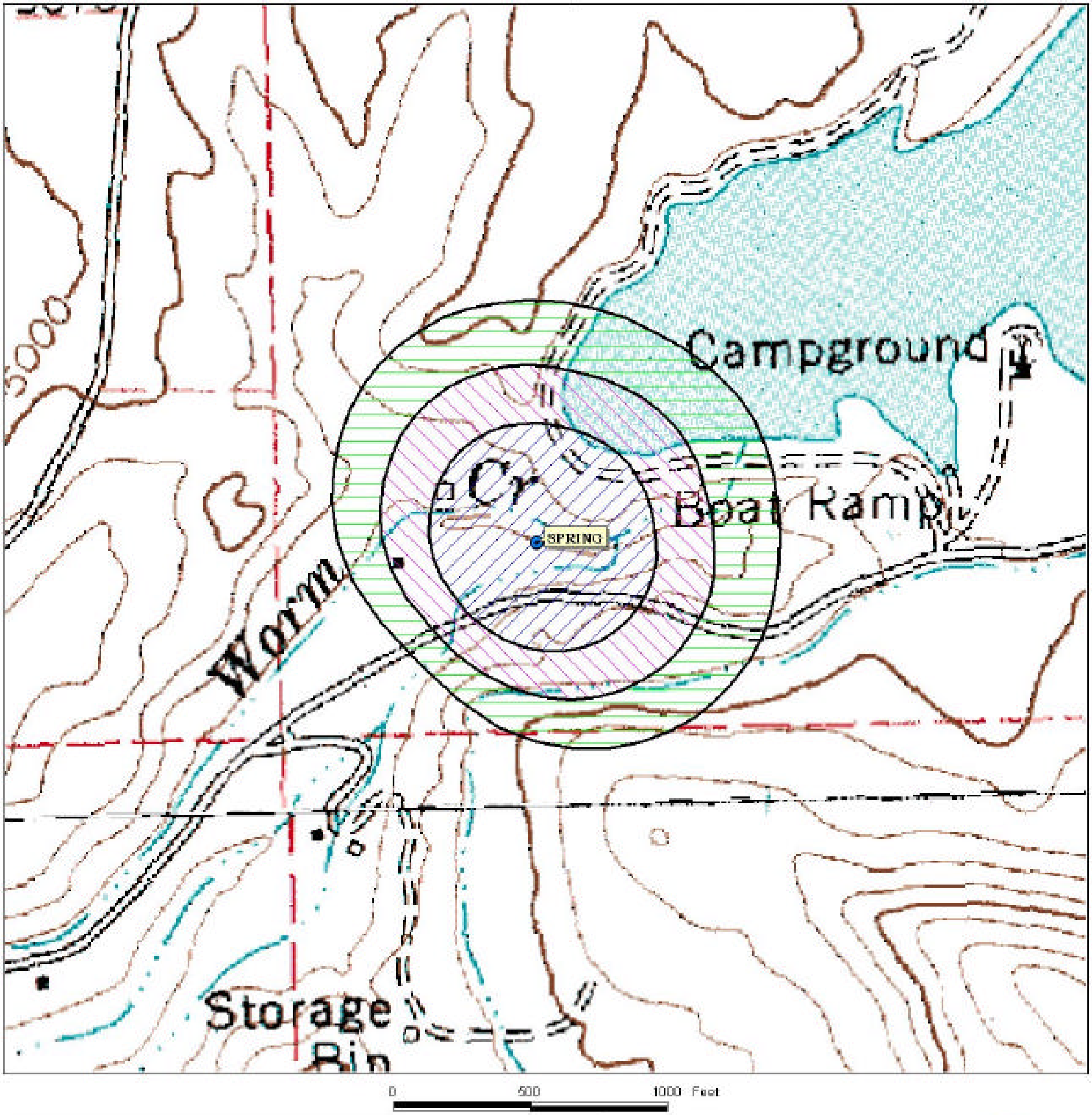
Delineation of the drinking water protection area for a spring involves special consideration. Hydrogeologic setting is foremost among the factors that control the shape and extent of the capture zone. A spring resulting from the presence of a high permeability fracture extending to great depth will have a much different capture zone than a depression spring formed where the ground surface intersects the water table in a unconsolidated aquifer.

The Refined Method

The uniform flow option of WhAEM (Kraemer et al., 2000) was used to delineate the source areas for seven springs that had some basis for estimating the flow direction, were located within Cache and Gem/Gentile Valleys, and had a general lack of other hydrogeologic data. Required input for the uniform flow option includes hydraulic gradient, hydraulic conductivity, aquifer thickness, and flow direction, but it does not require the explicit definition of hydrologic boundaries. The creation of a uniform flow model as used in this delineation effort involved only two of the four main elements of the refined method. Model Calibration (element 2) and Sensitivity Analysis (element 3) were not performed because there were no water level data with which to calibrate the models.

For the uniform flow models it is assumed that the PWS springs issue from sedimentary rock, due to the prevalence of this material throughout the mountains of southern Idaho. For this reason, the hydraulic conductivity, effective porosity, and hydraulic gradient used in the models are the default values presented in Table F-3 of the Idaho Wellhead Protection Plan for mixed volcanic and sedimentary rocks, primarily sedimentary rocks (IDEQ, 1997, p. F-6). The average discharge rates reported by the owner/operator or the State of Idaho Public Water Supply Inventory Form were used for the Preston Eastside Water Works spring. A base elevation of 0 feet mean seal level (ft-msl) was used to simplify the modeling process and had no impact on the size or shape of the resulting source areas. To maintain conservatism, no areal recharge was applied in any of the uniform flow simulations.

FIGURE 2. Preston Eastside Water Works Delineation Map and Potential Contaminant Source Locations



PWS# 6210012
SPRING

The delineated source water assessment area for the Preston Eastside Water Works spring can be described as three slightly oval areas (Figure 2). The actual data used by WGI in determining the source water assessment delineation area is available from DEQ upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act. Furthermore, these sources have a sufficient likelihood of releasing such contaminants into the environment at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. Field surveys conducted by DEQ and reviews of available databases identified potential contaminant sources within the delineated areas.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both, to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the <u>potential</u> for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply source.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in November and December 2002. The first phase involved identifying and documenting potential contaminant sources within the Preston Eastside Water Works source water assessment area through the use of surveys, computer databases and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to identify and add any additional potential sources in the delineated areas. The enhanced inventory was completed with the assistance of Lyle Porter. At the time of the enhanced inventory, no additional potential contaminant sources were found within the delineated source water area. Table 1 below includes a list of potential contaminant sources within the delineated area of the spring. Additionally, a map with the spring location, delineated areas, and potential contaminant sources are provided with this report (Figure 2).

Table 1. Preston Eastside Water Works Spring, Potential Contaminant Inventory

Source Description	TOT Zone[1] (years)	Source of Information	Potential Contaminants[2]
Irrigation Canal	0-3 (Zone 1A)	Sanitary Survey	IOC, VOC, SOC, Microbials
Glendale Road	0-3	GIS Map	IOC, VOC, SOC, Microbials
Glendale Road	3-6, 6-10	GIS Map	IOC, VOC, SOC
Unimproved Road	0-3	GIS Map	IOC, VOC, SOC, Microbials
Unimproved Road	3-6, 6-10	GIS Map	IOC, VOC, SOC
Worm Creek	0-3	GIS Map	IOC, VOC, SOC, Microbials
Worm Creek	3-6, 6-10	GIS Map	IOC, VOC, SOC
Glendale Reservoir	3-6, 6-10	GIS Map	IOC, VOC, SOC

[1] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Section 3. Susceptibility Analysis

The spring's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: construction, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for the spring is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Attachment A contains the susceptibility analysis worksheet. The following summaries describe the rationale for the susceptibility ranking.

Spring Construction

Spring construction scores are determined by evaluating whether the spring has been constructed according to Idaho Code (IDAPA 58.01.08.04) and if the spring's water is exposed to any potential contaminants from the time it exits the bedrock to when it enters the distribution system. If the spring's intake structure, infiltration gallery, and housing are located and constructed in such a manner as to be permanent and protect it from all potential contaminants, is contained within a fenced area of at least 100 feet in radius, and is protected from all surface water by diversions, berms, etc., then Idaho Code is being met and the score will be lower. If the spring's water comes in contact with the open atmosphere before it enters the distribution system, it receives a higher score. Likewise, if the spring's water is piped directly from the bedrock to the distribution system or is collected in a protected spring box without any contact to potential surface-related contaminants, the score is lower.

The spring is located at the bottom of a steep hillside about 30 feet downgradient of an irrigation canal. In 2001, a steeply sloped, three-foot high berm was built to prevent overflow from the canal. Water flows from the spring into a concrete spring box. A concrete manhole with a metal locking cover accesses the spring box. A ten-inch steel pipe carries the water from the spring box across Glendale Road to the storage reservoir approximately two miles south of the spring.

The spring rated highly susceptible for system construction (Table 2). According to the 1999 sanitary survey, the collection area of the spring is not covered with an impervious clay layer and/or a geo-membrane to prevent surface water from infiltrating to the source water. Although the water system has an easement on the land where the spring is located, the spring is on private property. Additionally, the spring area is not fenced to restrict access and there is no diversion above the spring to prevent surface water runoff from contaminating the collection area.

Potential Contaminant Source and Land Use

The spring rated moderately susceptible for IOCs (i.e., nitrates, arsenic), VOCs (i.e., petroleum products), and SOCs (i.e., pesticides), and low for microbial contaminants (i.e., bacteria). The predominant agricultural land use of the area and the road and water corridors within the 3-year TOT zone of the delineation contributed to the overall potential contaminant and land use ratings.

Final Susceptibility Ranking

A detection above a drinking water standard MCL, any detection of a VOC or SOC, or a confirmed microbial detection at the spring will automatically give a high susceptibility rating to the spring, despite the land use of the area, because a pathway for contamination already exists. Additionally, potential contaminant sources within 100 feet of a spring will automatically lead to a high susceptibility rating. Having multiple potential contaminant sources in the 0- to 3-year TOT zone (Zone 1B) contribute greatly to the overall ranking.

Table 2. Summary of Preston Eastside Water Works Susceptibility Evaluation

Susceptibility Scores[1]									
Drinking Water Source	Potential Contaminant Inventory and Land Use				System Construction	**Final Susceptibility Ranking**			
	IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Spring	M	M	M	L	H	H*	H*	H*	H*

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical
H* = Automatic high susceptibility due to an irrigation canal within 30 feet of the spring collection area

Susceptibility Summary

In terms of total susceptibility, the spring rated automatically high for IOCs, VOCs, SOCs, and microbial contaminants due to an irrigation canal that runs within 30 feet upgradient of the spring (Figure 2). System construction rated high and potential contaminant land use scores were moderate for IOCs, VOCs, and SOCs, and low for microbials.

Total coliform bacteria have been detected in the distribution system several times between July 1994 and October 2002, with repeated detections in July 1994, January 1995, September 1998, and April 2001. *E.coli* bacteria were detected in the distribution system once in 1997. However, no *E.coli* or coliform bacteria have been detected at the spring. No SOCs or VOCs have been detected in the spring water. The IOCs fluoride, sodium, and nitrate have been detected in the spring water but at concentrations below the MCL for each chemical, as established by the EPA. Traces of alpha and beta particles (radionuclides) have been detected at the spring and in the distribution system.

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Section 4. Options for Drinking Water Protection

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well or spring sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For the Preston Eastside Water Works, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey. The spring is located on private land, and the water system has an easement on this property. The water system has not been able to get permission to build a 100-foot radius fence to enclose the spring due to the land ownership situation. The water system may want to investigate modifying or amending the property easement as a viable means of gaining better control over activities within this area and protecting their sole drinking water source. In the meantime, working with landowners and monitoring activities in the vicinity of the spring are good protection measures. The irrigation canal that runs within 30 feet upgradient from the spring is lined with clay, and has a steeply sloped, three-foot high berm to prevent overflow that could impact the spring area. The water system indicated that it is physically impossible to divert or move the canal, and the canal itself catches and diverts surface water runoff from the spring’s collection area (communication, 2003). Although the MPA tests show that the spring is not under the influence of surface water, the water system should continue monitoring the irrigation canal as a possible contaminant threat to their drinking water. The land uses within most of the source water assessment areas are outside the direct jurisdiction of the Preston Eastside Water Works, collaboration and partnerships with state and local agencies and industry groups should be established and are critical to success. Educating employees and the public about source water will further assist the system in its monitoring and protection efforts.

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A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (e.g., zoning, permitting) or non-regulatory in nature (i.e., good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Pocatello Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Pocatello Regional DEQ Office (208) 236-6160

State DEQ Office (208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper (mlharper@idahoruralwater.com), Idaho Rural Water Association, at (208) 343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY LIST OF ACRONYMS AND DEFINITIONS

<u>AST (Aboveground Storage Tanks)</u> – Sites with aboveground storage tanks.

<u>Business Mailing List</u> – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

<u>CERCLA</u> – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

<u>Cyanide Site</u> – DEQ permitted and known historical sites/facilities using cyanide.

<u>Dairy</u> – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

<u>Deep Injection Well</u> – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

<u>Enhanced Inventory</u> – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

<u>Floodplain</u> – This is a coverage of the 100-year floodplains.

<u>Group 1 Sites</u> – These are sites that show elevated levels of contaminants and are not within the priority one areas.

<u>Inorganic Priority Area</u> – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

<u>Landfill</u> – Areas of open and closed municipal and non-municipal landfills.

<u>LUST (Leaking Underground Storage Tank)</u> – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

<u>Mines and Quarries</u> – Mines and quarries permitted through the Idaho Department of Lands.)

<u>Nitrate Priority Area</u> – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

<u>NPDES (National Pollutant Discharge Elimination System)</u> – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

<u>Organic Priority Areas</u> – These are any areas where greater than 25% of wells/springs show levels greater than 1% of the primary standard or other health standards.

<u>Recharge Point</u> – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RCRA – Site regulated under **<u>Resource Conservation Recovery Act (RCRA)</u>**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

<u>SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities)</u> – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

<u>Toxic Release Inventory (TRI)</u> – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

<u>UST (Underground Storage Tank)</u> – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

<u>Wastewater Land Applications Sites</u> – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

<u>Wellheads</u> – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

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Attachment A

Preston Eastside Water Works

Susceptibility Analysis Worksheet

Susceptibility Analysis Formulas

Formula for Spring Sources

The final spring scores for the susceptibility analysis were determined using the following formulas:

1. VOC/SOC/IOC/ Final Score = (Potential Contaminant/Land Use X 0.6) + System Construction

2. Microbial Final Score = (Potential Contaminant/Land Use X 1.125) + System Construction

Final Susceptibility Scoring:

0 - 7 Low Susceptibility
8 - 15 Moderate Susceptibility
≥ 16 High Susceptibility

Spring Water Susceptibility Report   Public Water System Name : PRESTON EASTSIDE WATER WORKS   SPRING
Public Water System Number 6210012   12/2/2002 11:02:55 AM

1. System Construction		SCORE
Intake structure properly constructed	NO	1
Is the water first collected from an underground source Yes=spring developed to collect water from beneath the ground; lower score No=water collected after it contacts the atmosphere or unknown; higher score	NO	2
Total System Construction Score		3

2. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED PASTURE	1	1	1	1
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	YES	YES	YES	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A		1	1	1	1
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	4	4	4	4
(Score = # Sources X 2) 8 Points Maximum		8	8	8	8
Sources of Class II or III leacheable contaminants or	YES	7	3	3	
4 Points Maximum		4	3	3	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Greater Than 50% Non-Irrigated Agricultural	2	2	2	2
Total Potential Contaminant Source / Land Use Score - Zone 1B		12	11	11	8
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	Greater Than 50% Non-Irrigated Agricultural	1	1	1	
Potential Contaminant Source / Land Use Score - Zone II		4	4	4	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	yes	1	1	1	
Total Potential Contaminant Source / Land Use Score - Zone III		2	2	2	0
Cumulative Potential Contaminant / Land Use Score		22	21	21	12
4. Final Susceptibility Source Score		16	16	16	16
5. Final Spring Ranking		High	High	High	High